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BABY FACE GENERATOR

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ABSTRACT

This paper having method of generating face of baby from two parent images. In thisface detection and facial feature marking are implemented first and then feature extraction was done to collect the useful information from each image. In feature marking only face was selected and remaining part was removed. After feature extraction, extracted features are combined and placed onto the base baby face at corresponding location.

I. INTRODUCTION

Many image processing technique such as face detection, facial feature marking, etc related to the human faces are more active. Also include combining of two individual images. The goal of this project for entertaining application of combining two images to generate new baby image.

The basic algorithm used for generating the baby faces as shown in fig.1. In this algorithm having face detection, feature extraction , base baby selection and morphing. The implementation included that either select file or take pictures from webcam.

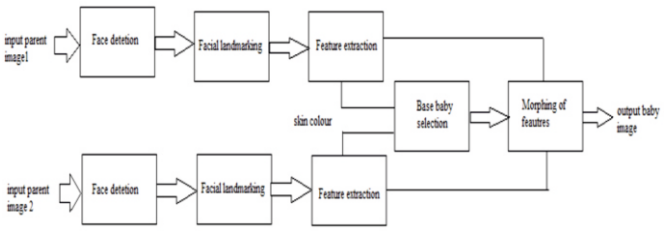

Fig.1. Algorithm for Baby Face Generator

II. FACE DETECTION

In the face detection, we take the images as input from webcam or selected file. The detected face may have extra part which was not in use. To remove that part or to select the only face, used face detection that select only face. That means bounding box was created.

III. FEATURES EXTRACTION

In feature extracting, facial features are extracted from detected face. Features like eyes, mouth and nose tip etc are extracted and stored. This features will combing to generate the baby face.

A. Eyes

Feature extraction for eyes contains shape of eye as well as the eye color. The first step was to find the centre location of iriss and radius of iriss.
To determine the eye color , rgb color format was used and color of eye were extracted.

B. Mouth

To determine the eye color , rgb color format was used and color of eye were extracted.

C. Nose

For nose select the trapezoidal region.Nose has two ellipse-shaped masks. Nose having different distance from both the eyes. So it was calculated into two parts i.e. left one and right one and then it extracted.

D. Skin

The final feature was skin color, which was extracted from each parent image and based on rgb color space. Using this skin region were successfully identified.

IV. BASE BABY SELECTION

The baby database contains different babies of varying skin and eye colors. This baby face compared with parent features such as eyes color and skin color, then appropriated baby was selected.

To select the base baby to be morphed with the parentimages, the primary consideration was skin color. This comparison was calculated by linearly combining the HSV valuesof each parent's skin color to form a composite skin color and finding the baby skin color closest to this composite skin color in HSV color space. forif both parents had green or blue eyes, a baby with blue or green eyes was selected.

V. FEATURE MORPHING

The algorithm automatically extracts feature points on the face, and based on these feature points images are partitioned and face morphing is performed. The algorithm has been used to generate morphing between images of faces of different people as well as between different images of the face of an individual.

A. Image Partitioning

Each facial feature is first partitioned into triangles and quadrilaterals based on the extracted facial key points.

B. Warping

Image warping is a transformation that is applied to the domain of an image, which modifies the geometrical properties of the image itself. In the warping process, an affine transformation is applied to map the coordinates of the triangles in the original image to the triangles in the warped image, while homographyis used for the quadrilaterals.

C. Cross Disolving

After the two feature images are warped to the same intermediate grid locations, they are cross-dissolved.

Result

Our proposed Baby Face Generator program was tested on different adult images. The sample results are presented in Fig.2 and Fig.3 . From qualitative examination, the generated baby images have features that pleasantly resemble the two parents, especially the shape of nose and mouth, eye color, and skin color. The program can be constrained to only accept forward facing input faces since it is intended to interact with the parent users directly.

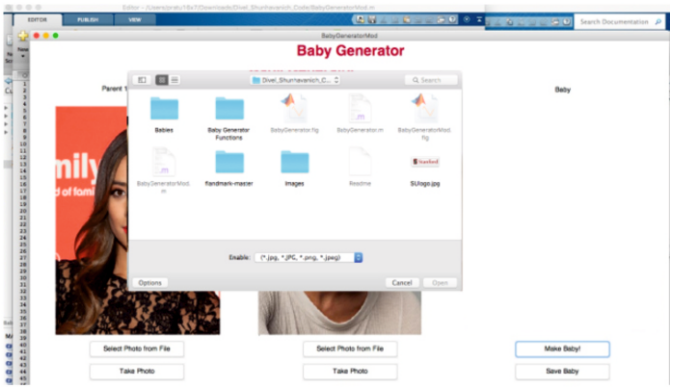

Fig.2. Selection of input image

Conclusion

In conclusion, an automatic Baby Generator Program has been developed. Facial features extraction and facial morphing algorithms have been employed to pro-

duce a satisfying composite baby face of two parent images. Further improvements could be achieved by using a larger database of base baby images and adding the detection of parents' ethnicity to enhance the selection of base baby images. Additionally, an age progression algorithm could be implemented to first generate a baby face of each parent before morphing the two together. This could potentially reduce artifacts introduced by the base baby and the age-variant features.

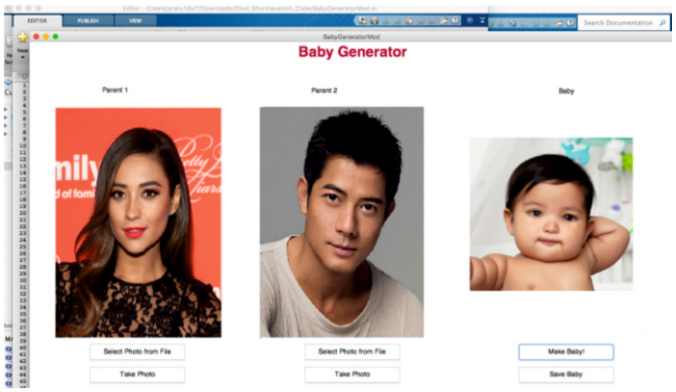

Fig.3.Generate baby image

REFERENCES

1. P. Viola and M. Jones, "Rapid object detection using a boosted cascade of simple features," in Computer Vision and Pattern Recognition,2001. CVPR 2001. Proceedings of the 2001 IEEE Computer Society Conference on, vol. 1. IEEE, 2001, pp. I–511.
2. D. B. Smythe, "A two-pass mesh warping algorithm for object transformation and image interpolation," Rapport technique, vol. 1030, p. 31, 1990.
3. G. Wolberg, "Image morphing: a survey," The visual computer, vol. 14, no. 8, pp. 360–372, 1998.
4. J. Canny, "A computational approach to edge detection," Pattern Analysis and Machine Intelligence, IEEE Transactions on, no. 6, pp. 679–698,1986.
5. C. Garcia and G. Tziritas, "Face detection using quantized skin color regions merging and wavelet packet analysis," Trans. Multi., vol. 1, no. 3, pp. 264–277, Sep. 1999. Online..Available: http://dx.doi.org/10.1109/6046. 784465
6. L. Vincent, "Morphological grayscale reconstruction in image analysis applications and efficient algorithms," Image Processing, IEEE Transactionson, vol. 2, no. 2, pp. 176–201, 1993